

LI TAI FANG, PH.D. (U.S. CITIZEN)

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SUMMARY OF ACCOMPLISHMENTS:

- Expert bioinformaticist with extensive experience in cancer informatics and project management
- Leading the somatic SNV/indel analysis team for FDA's SEQC2 Somatic Mutation Working Group
- Steering Committee Member of the Massive Analysis and Quality Control Society (MAQC)
- Authored/co-authored 16 peer-reviewed research articles across multiple disciplines
- Completed The Leadership Edge's From The Laboratory To Leadership program
- Speaker at 2017 Roche Sequencing Early Cancer Detection Panel, 2017 FDA SEQC2 Somatic Mutation Workshop, 2016 Roche R&D ExpertFora, 2016 Roche DISRUPT Innovation Mixer, 2016 Bio-IT World Conference, and 2014 California Alumni Healthcare Career Panel

PROFESSIONAL EXPERIENCE:

Roche Sequencing Solutions (Bina Technologies prior to Dec. 2014) Belmont, CA
Sr. Bioinformatics Scientist September, 2015 – Present
Bioinformatics Scientist March, 2014 – August, 2015

- Lead developer of SomaticSeq: the machine learning cancer analysis pipeline (paper is editor's pick)
- Led Bina team's participation in the ICGC-TCGA DREAM Somatic Mutation Calling Challenge: – placed #1 and #2 in Stage 5 of the INDEL and SNV challenges
- Developed key SNV and CNV algorithms incorporated in the Roche's AVENIO ctDNA RUO product
- Completed the SV detection feature sets as a part of the \$7.5 million post-acquisition milestone payment
- Designed the workflow for the 1000 TCGA Exome re-analysis project on Cancer Genomics Cloud
- Manage data analysis collaboration projects with internal research groups and external customers
- Write white papers, official blogs, peer-reviewed articles, and give live online seminars and talks
- Advocate meticulous documentation practices in the informatics teams using internal wikispaces

Oxbridge Biotech Roundtable – San Francisco Bay Chapter San Francisco Bay Area, CA
Events Director, Voluntary (25K worldwide and 2,000 local members) May, 2013 – May, 2014

- Organized roundtable discussions, workshops, and debates on the 1) Commercial potential of big data in biotech, 2) Academic-industry partnerships, 3) Gene patents, 4) Genetically modified food, 5) Science writing, 6) FDA policy on direct-to-consumer genetics test, and 7) Data reproducibility.
- Wrote background articles for promotional purposes, and build rapport with invited speakers
- Recruited 5 mentors for GSK/Roche/McKinsey-sponsored \$150K OneStart Business Plan Competition

SCIMALS, West Coast Team San Francisco, CA
Investment Analyst, Voluntary June, 2013 – February, 2014

- Completed a Next Generation Sequencing & Genomic Medicine market analysis project for the venture arm of a hospital network, by leading a team of 5 scientists across different geographical locations
- Prepared project proposals and progress reports, and attended conference calls with venture firms

UCSF Department of Surgery San Francisco, CA
Bioinformatician, Postdoctoral March, 2011 – February, 2014

- Implemented the very first Next Generation Sequencing analysis pipeline at Thoracic Oncology Lab
- Co-authored 6 papers, managed a 56-core computing cluster, group website *kimlab.surgery.ucsf.edu*
- Represented and spoke for UCSF Applied Genomics Lab at the 2012 Stanford Lung Cancer Symposium
- Trained lab technicians Linux commands, Bash scripting, computer algorithms, and the tools I created

- Won \$12,500 grant as a team in the “*Idea to IPO 2012*” bioentrepreneurship course sponsored by Burrill & Co., by building a business plan and pitching it to the venture capitalists (2 teams awarded)

The Hebrew University of Jerusalem

Theoretical Biophysicist, Postdoctoral

Jerusalem, Israel

March, 2010 – September, 2010

- Developed and implemented a mathematical model of RNA in 6 months, and published the results
- Discovered and formulated a scaling relationship between RNA’s 3D size and its linear length

EDUCATION:

University of California, Los Angeles

Ph.D. Biochemistry

Los Angeles, CA

September, 2003 – March, 2010

Had 5 years of hands-on wet lab biochemistry, plus 2+ years of computational/theoretical experience:

- Won the \$1000 Physical Chemistry Research Award as a Biochemistry PhD Student in 2009
- The **only** student in UCLA Biochemistry during my time to publish a **single-authored** research paper
- On my own initiative, developed a mathematical model to calculate the 5’ to 3’ distance of RNA
- Taught 9 classes in Statistical Mechanics, Quantum Mechanics, Thermodynamics, and Biochemistry
- Dissertation: The Physics of DNA, RNA, and RNA-like Polymers
 - ★ Discovered an additional entropic force involved in the release of virus genome
 - ★ Measured the bending and electrostatic energies of DNA in viruses
 - ★ Contributed to the understanding of energies and physical forces inside viruses, relevant to genetic engineering efforts using viruses as delivery vehicles

University of California, Berkeley

B.A. Molecular and Cell Biology

Berkeley, CA

August, 1999 – May, 2003

- GRE scores: 800 in quantitative; 770 in analytical and logical reasoning (out of 800)
- SAT II scores: 800 in math; 730 in physics

SELECTED PUBLICATIONS:

- **Fang LT**, Afshar PT, Chhibber A, *et al.* An ensemble approach to accurately detect somatic mutations using SomaticSeq. *Genome Biol.* 2015;16(1):197. *** Editor’s Pick ***
- **Fang LT**, Lee S, Choi H, *et al.* Comprehensive genomic analyses of a metastatic colon cancer to the lung by whole exome sequencing and gene expression analysis. *Int J Oncol.* 2014;44(1):211-21.
- **Fang LT**. The end-to-end distance of RNA as a randomly self-paired polymer. *J Theor Biol.* 2011;280(1):101-7. *** Sole Author ***
- **Fang LT**, Gelbart WM, Ben-Shaul A. The size of RNA as an ideal branched polymer. *J Chem Phys.* 2011;135(15):155105.
- **Fang LT**, Yoffe AM, Gelbart WM, Ben-Shaul A. A sequential folding model predicts length-independent secondary structure properties of long ssRNA. *J Phys Chem B.* 2011;115(12):3193-9.

NON PEER-REVIEWED:

- SomaticSeq: An ensemble and machine learning approach to accurately detect somatic mutations. *Company Promotional Video*, (12/2015)
- Bina’s official blogs: <http://blog.bina.com/read/author/li-tai-fang>
- Bina Cancer White Paper. *Released in 2014 during ASHG Conference*